

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Amended) A method for determining whether a nucleotide or an oligonucleotide is added to a nucleic acid, the method comprising:
 - a) providing a solid support having an immobilized nucleic acid;
 - b) performing a nucleic acid addition reaction by adding a nucleotide or an oligonucleotide to the nucleic acid immobilized on the solid support to synthesize a nucleic acid molecule on the solid support;
 - c) after the nucleic acid addition reaction, passing the solid support through a channel opening with at least one detector, wherein the at least one detector detects the length of a nucleic acid;
 - d) determining whether the nucleotide or the oligonucleotide is added to the nucleic acid immobilized on the solid support using the at least one detector, wherein an increase in length of the nucleic acid molecule on the solid support indicates that the nucleotide or the oligonucleotide has been added to the nucleic acid immobilized on the solid support; and
 - e) repeating steps b) through d) if the nucleotide or the oligonucleotide is not added to the nucleic acid immobilized on the solid support.
2. (Currently Amended) The method of claim 1, wherein the solid support is a bead or particle and further comprising the step of detecting whether there is an increase in electrophoretic force applied to the solid support when an electric field and ~~an~~ a magnetic field gradient are applied to the solid support, wherein the increase in electrophoretic force applied to the solid support is caused by adding the nucleotide or the oligonucleotide to the nucleic acid immobilized on the solid support.
3. (Previously Amended) The method of claim 14, wherein the errors in the sequence of the nucleic acid molecule are selected from the group consisting of insertion errors, deletion errors, and wrong base incorporation errors.
4. (Currently Amended) A method for determining whether a nucleotide or an oligonucleotide is added to a nucleic acid, the method comprising:

- a) providing a solid support having an immobilized nucleic acid;
- b) performing a nucleic acid addition reaction by adding a nucleotide having a fluorescent 5' protecting group or an oligonucleotide having a fluorescent 5' protecting group to the nucleic acid immobilized on the solid support to synthesize a nucleic acid molecule having a fluorescent 5' protecting group on the solid support;
- c) after the nucleic acid addition reaction, passing the solid support through a channel opening with at least one detector, wherein the at least one detector detects ~~fluorescent~~ fluorescent signals;
- d) determining whether the nucleotide having a fluorescent 5' protecting group or the oligonucleotide having a fluorescent 5' protecting group is added to the nucleic acid immobilized on the solid support using the at least one detector, wherein the presence of the nucleic acid molecule having a fluorescent 5' protecting group on the solid support indicates that the nucleotide having a fluorescent 5' protecting group or the oligonucleotide having a fluorescent 5' protecting group is added to the nucleic acid immobilized on the solid support; and
- e) repeating steps b) through d) if the nucleotide having a fluorescent 5' protecting group or the oligonucleotide having a fluorescent 5' protecting group is not added to the nucleic acid immobilized on the solid support.

5. (Currently Amended) A method for preventing errors in a nucleic acid molecule, the method comprising:

- a) synthesizing a nucleic acid molecule having a 5' protecting group by adding a nucleotide having a 5' protecting group or an oligonucleotide having a 5' protecting group to a nucleic acid;
- b) deprotecting the nucleic acid molecule by washing the nucleic acid molecule using a deprotection wash to remove the 5' protecting group of the nucleic acid molecule, and producing an after-washing solution;
- c) flowing the after-washing solution through a channel opening and monitoring the ~~after-wash~~ after-washing solution through the channel opening for the presence of a removed 5' protecting group; and
- d) repeating steps b) and c) if the removed 5' protecting group is not detected in the after-washing solution through the channel opening or adding a nucleotide having a 5' protecting group or an oligonucleotide having a 5' protecting group to the nucleic acid molecule if the

removed 5' protecting group is detected in the after-washing solution through the channel opening, thereby preventing errors in the sequence of the nucleic acid molecule.

6.-11. (cancelled)

12. (Previously Amended) The method of claim 4, wherein the solid support is a bead or particle and further comprising the step of detecting whether there is an increase in electrophoretic force applied to the solid support when an electric field and an magnetic field gradient are applied to the solid support, wherein the increase in electrophoretic force applied to the solid support is caused by adding the nucleotide or the oligonucleotide to the nucleic acid immobilized on the solid support.

13. (Currently Amended) The method of claim 5, wherein the 5' protecting group of the nucleic acid molecule is a fluorescent 5' protecting group and said monitoring step ~~are~~ is carried out using a plurality of light sources and ~~fluorescent~~ fluorescence detectors.

14. (Previously Amended) The method of claim 4, further comprising the steps of:

if step d) indicates the presence of the nucleic acid molecule having a fluorescent 5' protecting group on the solid support, deprotecting the nucleic acid molecule by washing the nucleic acid molecule using a deprotection wash to remove the fluorescent 5' protecting group of the nucleic acid molecule, and producing an after-washing solution;

flowing the after-washing solution through a channel opening;

monitoring the after-washing solution through the channel opening for the presence of a removed 5' protecting group; and

repeating the deprotecting, flowing, and monitoring steps if the removed 5' protecting group is not detected in the after-washing solution through the channel opening or adding a nucleotide having a 5' protecting group or an oligonucleotide having a 5' protecting group to the nucleic acid molecule on the solid support if the removed 5' protecting group is detected in the after-washing solution through the channel opening, thereby preventing errors in the sequence of the nucleic acid molecule.

15. (Previously Amended) The method of claim 14, wherein the solid support is a bead or particle and further comprising the step of detecting whether there is an increase in electrophoretic force applied to the solid support when an electric field and an magnetic field gradient are applied to the solid support, wherein the increase in electrophoretic force applied to the solid support is caused by adding the nucleotide or the oligonucleotide to the nucleic acid immobilized on the solid support.

16. (Currently Amended) The method of claim 14, wherein said monitoring step ~~are~~ is carried out using a plurality of light sources and ~~fluorescent~~ fluorescence detectors.

17. (Previously Amended) The method of claim 5, wherein the errors in the sequence of the nucleic acid molecule are selected from the group consisting of insertion errors, deletion errors, and wrong base incorporation errors.

18. (cancelled)